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24 November 1958

The Files - RD-125, Task Order 4

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Trip Report - RT-27 Transmitter

1. On 13 November 1958 a visit was made to the [REDACTED] Philadelphia, Pennsylvania, to monitor the progress of RD-125, Task Order 4, development of Field Station Transmitter, RT-27. Participating in discussions concerning this project were:

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[REDACTED] - OC-E/R+D-KP

2. The initial RT-27 transmitter is scheduled for completion 21 November 1958, at which time systems tests will begin. The contractor is confident that delivery will be made to us during December, despite our admonition that exhaustive performance tests must be conducted on the prototype before we can accept it. Since it is unlikely that the first system tests will fail to turn up any defect whatever, it is the writer's belief that delivery of this unit cannot be made before mid-January 1959. Breadboards of the complete RT-27 system as well as several individual modules, have of course been thoroughly tested.

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3. What has evolved as the major problem in the current RT-27 program, the development of a small high voltage variable capacitor, appears finally to have been solved. The Teflon dielectric printed circuit capacitor which the contractor had planned to use, failed during life tests, and he has now settled upon a Micalax dielectric printed circuit capacitor for the critical pi-input capacitor. [REDACTED] has been unable to break it down and is now attempting to arrange for the use of Signal Corps tests facilities at Fort Monmouth in order to determine the maximum working voltage of this component. Since it seems more than adequate for our application, however, it will be used in the initial RT-27 prototype. In the event the Micalax capacitor for some reason proves unusable, [REDACTED] is pursuing another approach with the International Resistor Corporation, which is supplying ordinary condenser plates with 100X teflon.

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4. The contractor was reminded of several suggestions made by Messrs. [REDACTED] during a plant tour on the previous day, including a decision to move the 110-220 volt switch on the RT-27 power supply from the rear of the equipment to its front panel. Keying terminals for both manual (break-in) and high speed keying will be provided on the rear apron.

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5. It was determined that the nominal frequency coverage of Band 1 on the RT-27 would be 3 to 10.5 megacycles and that Band 2 would be 10.5 to 32 megacycles. On Band 1 the operator uses the fundamental frequency of CR-18U crystals, or sets his VFO to the desired operating frequency. On Band 2 a crystal or VFO setting which is 1/3 of the operating frequency is used. Band switches are used in the crystal oscillator and buffer driver modules, but not in the VFO or power output modules.

6. During a discussion of the safety interlock system with [REDACTED] it developed that the interlock for the power supply would merely remove high voltage from the output connector when the dust cover was removed. Since this was not felt to be adequate protection for the maintenance technician, [REDACTED] was asked to put the power supply interlock in the AC line so that dangerous voltages would be removed from all points in the power supply when its dust cover was removed. An interlock override switch will still be provided for testing purposes, and a red light will indicate to the operator when this switch is on.

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7. [REDACTED] reported that 6L97's have replaced both the 6CL6 buffer and 5763 driver tubes in the RT-27. The tube complement of the RT-27 will therefore be 6L97-6L97-4CX250B. (The 6L97 is a ruggedized version of the 6CL6 and is JAN approved.)

8. The RT-27 power supply has passed all environmental tests, and except for the switch changes noted above, is ready for delivery. During the life tests the RT-27, delivering full power to a dummy load, was operated continuously for 100 hours, and switched ON and OFF every minute for another 100 hours, (to test for transients) with no component failures.

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OC-E/R+D-EP/wJS:mjr (24 Nov. 58)

cc: R+D Subject File
Monthly Report
R+D Lab
OC-T
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EP Chrono

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